IN THE CLAIMS:

Listing of the claims:

1-59 (Cancelled)

60. (Currently amended) An optical ~~sensor~~ hydrophone assembly comprising:

a plurality of optical fibre hydrophone sensor coils, responsive to imposed strain to produce a change in phase of an optical signal passing therethrough, said hydrophone sensor coils being longitudinally spaced optically coupled by optical fibre; and

an elongate support element, on which said plurality of optical fibre sensor coils and optically coupling optical fibre are mounted; wherein said support element has an elastic limit such that when said support element is bent away from the elongate axis, the optical fibre fracture limit is reached before the elastic limit is reached.

61. (Previously presented) An optical sensor assembly according to claim 60, said support element has an elastic limit such that when said support element is bent away from the elongate axis around a curve having a radius of half a metre the support element elastic limit is not reached.

62. (Previously presented) An optical sensor assembly according to claim 60, wherein said support element is a flexible rod.

63. (Previously presented) An optical sensor assembly according to claim 62, wherein said rod has a circular cross section.

64. (Previously presented) An optical sensor assembly according to claim 62, wherein said support element comprises a carbon fibre rod.

65. (Previously presented) An optical sensor assembly according to claim 62, wherein said support element comprises a steel rod.

66. (Previously presented) An optical sensor assembly according to claim 60, wherein said plurality of optical fibre sensor coils are arranged optically in series with each other.

67. (Previously presented) An optical sensor assembly according to claim 60, wherein said plurality of optical fibre sensor coils are mounted on said support element such that the distance between adjacent coils is substantially identical.

68. (Withdrawn) An optical sensor assembly according to claim 60, said assembly further comprising a plurality of hollow mandrels corresponding to said plurality of optical fibre sensor coils, each of said mandrels having an internal and an external surface; wherein each of said plurality of optical fibre sensor coils is wound around said external surface of said corresponding mandrel, said plurality of optical fibre sensor coils being mounted on said support element by connecting a portion of said internal surface of said corresponding mandrel to said support element.

69. (Withdrawn) An optical sensor assembly according to claim 68, wherein said portion of said internal surface connected to said support element comprises a central portion of said internal surface substantially mid way between either end of said mandrel.

70. (Withdrawn) An optical sensor assembly according to claim 68, wherein said mandrel is substantially cylindrical in shape.

71. (Withdrawn) An optical sensor assembly according to claim 68, wherein said mandrel comprises an inner member and an outer former; wherein said outer former is mounted via at least one compressible seal on said inner member such that there is a cavity between said outer former and said inner member, said compressible seal being significantly more compressible than said outer former or said inner member such that it is operable to seal said cavity across a range of temperatures and pressures.

72. (Withdrawn) An optical sensor assembly according to claim 60, at least one portion of said support element comprising an external surface that is compressible.

73. (Withdrawn) An optical sensor assembly according to claim 72, said compressible external surface of said support element comprising a compressible material mounted to cover said at least one portion of said support element.

74. (Withdrawn) An optical sensor assembly according to claim 72, wherein said at least one portion of said support element comprising a compressible external surface includes said portions of said support element between said plurality of optical fibre sensor coils.

75. (Withdrawn) An optical sensor assembly according to claim 74, wherein said optically coupling optical fibres are wound around said compressible external surface of said support element.

76. (Withdrawn) An optical sensor assembly according to claim 75, said assembly further comprising further compressible material covering said optically coupling optical fibre and said compressible external surface.

77. (Withdrawn) An optical sensor assembly according to claim 60, further comprising a sheath of compressible material covering an outer envelope of said optical sensor assembly.

78. (Withdrawn) An optical sensor assembly according to claim 73, wherein said compressible material comprises open celled foam.

79. (Withdrawn) An optical sensor assembly according to claim 60, said assembly further comprising a protective cover mounted to substantially surround an outer surface of each of said plurality of optical fibre sensing coils.

80. (Withdrawn) An optical sensor assembly according to claim 79, said protective cover being mounted by attachment to said support element.

81. (Previously presented) An optical sensor assembly according to claim 60, said optical sensor assembly comprising four optical fibre sensor coils.

82. (Currently amended) An optical sensor assembly according to claim 60, wherein said plurality of optical ~~sensing~~ fibre hydrophone sensor coils ~~comprise~~ form a single hydrophone.

83. (Withdrawn) An optical sensing array comprising a plurality of optical sensor assemblies as claimed in claim 60, said plurality of optical sensor assemblies being in optical communication with each other.

84. (Withdrawn) An optical sensing array according to claim 83, wherein said plurality of optical sensor assemblies are mechanically attached to one another by cords.

85. (Withdrawn) An optical sensing array according to claim 83, said array further comprising a protective cover, said array having a substantially cylindrical outer envelope and said protective cover being in the form of a hose.

86. (Withdrawn) An optical sensing array according to claim 85 said array further comprising a buoyant fluid confined within said hose.

87. (Withdrawn) An optical sensing array according to claim 86, wherein said buoyant fluid is kerosene.

88. (Withdrawn) A mandrel for supporting an optical sensing coil, said mandrel comprising:
an inner member; an outer former; and
at least one compressible seal; wherein

said outer former is mounted via said at least one compressible seal on said inner member such that there is a cavity between said outer former and said inner member, said compressible seal being significantly more compressible than said outer former or said inner member such that it is operable to seal said cavity across a range of temperatures and pressures.

89. A mandrel according to claim 88, said mandrel comprising a further compressible seal, said cavity being formed between said two compressible seals, said former and said inner member.

90. (Withdrawn) A mandrel according to claim 89, wherein said two compressible seals comprise O-rings.

91. (Withdrawn) A mandrel according to claim 90, wherein said O-rings have an external diameter of between 5 and 30 mm.

92. (Withdrawn) A mandrel according to claim 88, wherein said at least one compressible seal has a thickness of between 1 and 5mm.

93. (Withdrawn) A mandrel according to claim 88, wherein said at least one compressible seal is formed from rubber.

94. (Withdrawn) A mandrel according to claim 89, wherein said inner member comprises two recesses, said two compressible seals being mounted within said two recesses.

95. (Withdrawn) A mandrel according to claim 94, said inner member comprising a further recess, said further recess forming a portion of said cavity.

96. (Withdrawn) A mandrel according to claim 88, wherein said inner member is made of a substantially rigid material.

97. (Withdrawn) A mandrel according to claim 96, wherein said inner member is made of metal.

98. (Withdrawn) A mandrel according to claim 88, wherein said former is made of plastic.